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Electronic Forms Design Handbook

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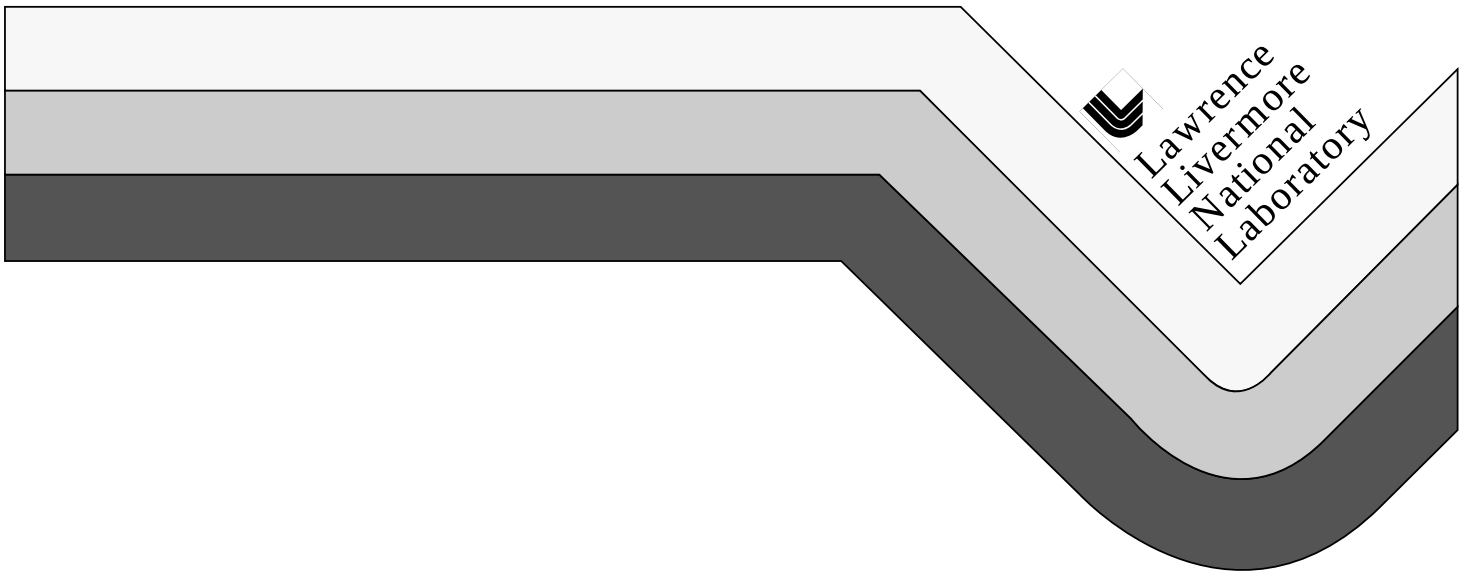

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The Electronic Forms Design Handbook

Background

This handbook was developed by a committee of electronic forms designers. We developed this handbook both for ourselves and for you to answer questions about forms design. Our committee believes that we can help each other. Much of what we have learned has come from each of us, individually struggling through the development process. Through networking and user groups, we have developed some insights and problem-solving skills. We attempt to share them here with you, the designer.

> ☞ **Although the examples in this handbook are specific to Shana's Informed Designer®, the information is generic and may be transferred to the software you use.**

How to Use This Guide

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Future Handbook Updates

Over time, our experience base grows and technologies advance. For that reason, this handbook will be updated frequently. Updated versions will be posted on a public access server so that you can retrieve future updates electronically and print them locally.

Comments and Suggestions

Appendix B, Tips, Tricks, and Techniques, is a "bulletin board" to which anyone can contribute. We welcome and encourage your comments and suggestions.

Additionally, if you are interested in contributing to future revisions of this handbook, please contact the editor listed in Appendix A.

Who's Who—Terms We Use

Form Sponsor

A form sponsor is an organization or a person who represents the organization that "owns" or originally created the form. The form sponsor may also be a client who requests that a form be created. The form sponsor provides the information concerning the purpose of the form, what information needs to be on the form, the process and procedure for filling out the form, and approves the form design and layout. Other interested parties may contribute to the development of the form, but the form sponsor should be the single contact who makes the final decisions and approves all changes to the form content.

Form Designer

The form designer is the person who creates the form. The form designer must work closely with the form sponsor to identify the sponsor's needs. The form designer should review any existing version of the form and understand how the new form will be used. Because electronic forms offer additional capabilities over paper forms, the form designer should make every effort to become familiar with the business process surrounding the form as well as the business needs of the form sponsor. The form designer is responsible for ensuring all programming is complete, functional, and correct.

Form User

Everyone is a potential form user. Form users ultimately receive the most benefit from a good form design. A form user may make comments and suggestions for improvement to either the form sponsor or form designer. A form designer often makes up "test" information to test the form; however, a form user often sees problems related to "real" use. It is helpful to have someone participate in the testing process who will extensively use the form to prevent problems before the completed form is distributed.

E-Forms Registrar

The LLNL E-Forms Registrar is responsible for the final acceptance of forms to be added to the LLNL Forms Server. Any form added to the server must be tested and approved by the form sponsor, form designer, and E-Forms Registrar. The registrar maintains all registration records and version controls. If the form designer is not available, the registrar may make minor programming corrections (e.g., bug fixes) to the form. Chapter 5 explains the process for having a form officially tested and added to the LLNL Forms Server.

Electronic Forms Used at LLNL

Location

Official LLNL electronic forms are currently available on the LLNL Forms Server located in the AIS AppleShare Zone on Open LabNet.

Software Required for Access

All forms on the server are constructed using Informed Designer® by Shana Corporation and require the user to have a copy of the Informed Manager® software.

Review and Certification

Forms on the server have been reviewed and certified for compliance with DOE requirements, and conform to the protocols established for electronic forms at LLNL.

All forms on the server, usually the approved electronic versions of approved DOE or LLNL paper forms, are authorized for Laboratory-wide use and are accepted by the form sponsor as the "official" electronic form to be used in transactions with that office. The form sponsor may refuse to accept other forms.

Updates

Updates to forms on the server are frequent. The addition of new forms is unscheduled but also frequent. E-mail messages are sent to subscribers of the Electronic Forms Automation mailing list announcing form updates, new forms, and meetings of the users' groups. Users should review the forms on the server to obtain the latest version of the form they want to use. Versions are sequentially numbered, such as v2.3c, where the initial digit (2) represents a major revision, the first decimal position (3) represents a relatively minor revision, and the letter suffix (c) usually represents minor adjustments in layout, font options, or similar cosmetic changes.

As a professional courtesy among form designers, form users, and the E-Forms Registrar, another designer should not change a form once it is approved and released to the LLNL Forms Server.

To eliminate user confusion as to the most recent and correct version of the form, there must be only one official version. If form designers or form users need changes or improvements, they must contact the form sponsor, the form designer, or the E-Forms Registrar.

Form Instructions

Each form contains a work page (Page W) with instructions for using the form, an explanation of special features, and other information of value to the user. In addition, each field of the form usually has a help message available to describe the requirements or peculiarities of the particular field. Macintosh System 7.0 (and later) users can access the Help feature by selecting Show Balloons from the Help icon in the upper right corner of the desktop. Informed Manager® v1.4.x users may access Help using the Command+? key combination.

Form Resources at LLNL

User Groups

There are two user groups at LLNL that may offer help in designing electronic forms:

Forms Automation Support Team (FAST)

FAST was established to assist new users in understanding and using electronic forms, to introduce and test new forms, to assist FADE in determining development priority, and to share experiences in using electronic forms.

Forms Automation Designers' Exchange (FADE)

FADE is geared toward exploring solutions to application problems, forms design issues, and accommodating the needs developed by FAST. New software is reviewed, priorities established, and training examined for suitability to needs. The FADE group also establishes conventions and protocols for electronic forms at LLNL, reviews them to assure currency, and proposes changes as needed. The group assists in assigning forms for development and assists each other in dealing with new requirements, new design issues, and improving on previous forms work.

User Group Meetings

A FAST meeting occurs monthly on the 3rd Wednesday of the month at 10:00 a.m. in the B-439 Training Facility. Announcements of the meetings are sent through e-mail to subscribers to the Electronic Forms Automation mailing list and through the Bulletin Board distribution. Contact Lauri Falabella or Frank Ploof for agenda suggestions, questions on forms design, etc.

FADE now meets on an ad hoc basis.

Steering Committee

The Forms Automation Steering Committee oversees forms automation activities at the Lab. Forms Automation Steering Committee meetings are held every Tuesday at 8:30 a.m. in the B-439 Conference Room.

Electronic Forms Automation Mailing List

Members of the Electronic Forms Automation mailing list receive notification of new and updated electronic forms and of meeting announcements. To subscribe to the Electronic Forms Automation mailing list, use the Autoreg system (Telnet Autoreg Instructions are on the LLNL Forms Server) or call the LCC Hotline, extension 2-4531.

Design Elements 2

Principles of Design

Overview

Designing a form encompasses many roles: architect, real estate agent, graphic artist, and programmer. The graphic appearance of a form is very important because it affects the user's comprehension, readability, and the efficiency of the form. If the form is not easy to read and understand, the user will have a tendency to skip important information or may not fill out the form at all. Proper spacing and white space are vital to the efficiency of a form. The spacing of items must be compatible with the method of fill-in so the data can be entered quickly and easily. In short, the form should be an efficient information-gathering tool; it should be simple, with items grouped logically, ample space for fill-in data, and have a pleasant appearance. A satisfied, enthusiastic user is the goal of the form designer.

To create a successful form, the design must be legible and readable. *Legibility* is the primary concern in the use of type and line art. Legibility is how the type is presented and how easily we can recognize and identify a symbol, letter, or words. *Readability* refers to the ability to understand the written message; grammar, structure, and usage are important elements to readability.

An informative handbook *Form Design II*: *The Course for Paper and Electronic Forms* by Marvin Jacobs and Linda Studer offers in depth information on form design. Copies of the handbook are available from Ameritype & Art Publications, 724 Keith Building, 1621 Euclid Avenue, Cleveland, OH 44115.

Principles of Design, Continued

Form Design Principles

The following are important principles of designing successful, effective forms.

Attraction	Attraction draws the eye to a visual element immediately.
Contrast	Contrast between form elements creates interest and helps the reader by highlighting important elements such as instructions. Contrast can be created by making certain items larger or bolder or by breaking up large blocks of text to ensure ease of reading.
Harmony	Harmony is the opposite of contrast; it does not interrupt the eye, but allows it to flow smoothly from one element to another.
Movement	Movement is the logical flow in the arrangement of the elements on the form.
Optical Balance	Optical Balance is achieved by dividing space into equal or logical parts; designing a form with elements sized and positioned so that they appear balanced in relation to the optical center, not necessarily the mathematical center. If it looks balanced, it is balanced.
Proportion	Proportion is the relationship of visual elements to each other, and to the whole. Consider relationships of size, shape, color, and quantity. Remember, proportion can cause contrast.
Rhythm	Rhythm is the shape, color, etc., of visual elements that occur in regular or repetitive patterns.
Typography	Typography is the selection of fonts, sizes, and how the type is arranged on the page.
Unity	Unity is the cohesion of a design when all elements agree.

Form Information Flow

Arranging information to flow logically reduces errors during fill-in. Information should be arranged so that the entry order is left-to-right and top-to-bottom because this is our natural reading pattern.

Grouping information establishes a logical relationship between information elements and can increase speed and accuracy of form reading and processing. Information can be grouped by several methods: related subjects, processing sequence, or items used by a particular person or office.

Sequencing refers to the way information is formatted on a series of similar forms (e.g., Borrow Data Sheet, Borrow Add-On Sheet). Similar (like) information should be formatted in the same sequence from form to form and should always appear in approximately the same location from form to form.

Form design is easy when you consider the type of information needed. If you divide a form into the different types of information necessary to the form, you would have *five zones:* **form identification**, **instructions**, an **introduction**, the **body**, and the **closing**.

- **Form identification** tells the user the form name and number. The form title should be brief and descriptive without unnecessary words such as "form."

- **Instructions** are given in many ways. Each caption can be an instruction if it is precise and clear (e.g., "invoice date" instead of "date"). General instructions should be near the top of the form so the user will see them before completing the form. You can highlight instructions by using italics, bold, or other techniques such as reverse text. If general instructions are too long, refer the user to the work page. It is important to place instructions where they will be most helpful.

- **Introductory information** indicates who the key players are in the processing of this form: the form originator/requester and the form processor (form sponsor perhaps). It also provides transaction dates and reference numbers such as PO numbers, account numbers, etc. This type of reference information is best placed where it will be readily seen when the form is processed and filed—the upper right corner in many cases. This may be an important consideration for the form sponsor.

- The **body** contains the primary form information and will be the largest part of the form.

- The **closing** includes authorization signatures and dates, routing instructions, etc.

Organizing the items within each zone into proper order will increase the accuracy and speed of processing the form.

Textual Elements

Overview

The most important element in form graphics is the typography; the selection of fonts, sizes, and how type is arranged on the page. Poor font selection can turn a well-designed form into an unattractive one. There are two styles of fonts that appear on forms: Serif and Sans Serif. Sans serif fonts such as Helvetica are generally used for form layout because it will not detract from the more important fill-in data (which is usually set in a serif font such as Times or Palatino).

Serif Type

Serif type is identified by the small leader bar at the end of the letter stroke; it also has a variation in the width of the letter stroke. This style is easier to read and imitates our own handwriting style; the bar at the end of the stroke moves our eyes from left to right. Serif should be used for large blocks of text, such as instructions or statements because it is easier to read.

Is Jack Russ developing the form?

Sans Serif Type

Sans Serif type does not have the leader bar at the end of the stroke and shows no variation in the width of the letter stroke. This style offers a contrast to the way in which words and letters are most familiar to us, both handwritten and computer-generated.

Is Jack Russ developing the form?

Screens

Screens are used primarily to highlight information on the form. A screen is produced by filling an area with a lighter shade of a solid color, such as a 10% fill. This produces a dot pattern that the eye perceives as a lighter shade of the original color. In the case of a screened black, the eye sees a gray color. Various items such as words, lines, logos, line art illustrations and special areas may be screened, although this technique should be used sparingly.

For Accounting Use Only

Original Balance _____
Payment _____
Balance Now Due _____

Capital Letters

All capital letters should be used for attraction. They are recommended primarily for captions. It is best to use sentence case (capitalize the first word in each sentence) for text. When all caps are used, it is difficult to find the period at the end of the sentence, or to find the next capital at the beginning of the next sentence.

> DO YOU FIND TRYING TO READ AND UNDERSTAND ALL CAPS WHEN WRITTEN IN TEXT TO BE DISTRACTING? ALL CAPS CAN REDUCE READING SPEED BY 17%.

Font Consistency

Consistency in font style and size must be maintained for legibility. Forms should be easy to read and pleasing to the eye. The font (Palatino, Times, Helvetica), the size (10, 12, 14), and the style of the font (bold, italic, caps, underlined) are all important. Not all fonts are good for forms because some are hard to read. Once a font is chosen, it should be consistent for all the form fields. Using different fonts within the form will make it harder for the user to understand what information is important and what isn't. To ensure readability of a form, use one font for the form template, such as Helvetica 9, 10, or 12, and use another font for the input, such as Times 10 or 12.

> Do you find this **distracting** ? Changing size and *font* style has a negative affect on the reader's **ability** to *distinguish* the **outlines** .

Letter Spacing

> T h e a d d i t i o n o f e x t r a l e t t e r s p a c i n g m a k e s t h e o u t l i n e o f a w o r d h a r d e r t o r e c o g n i z e than those without extra letter spacing.

Textual Elements, Continued

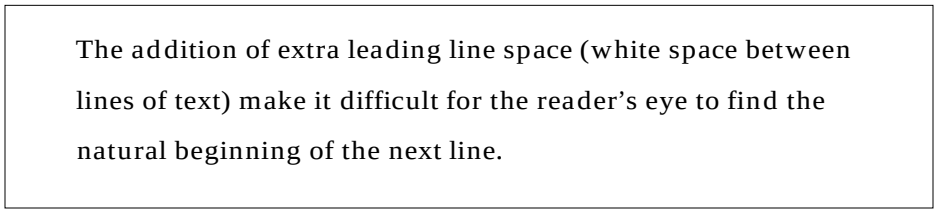
Bold and Reverse

Bold and reverse are effective tools for emphasis. A reverse occurs when a light pen color overlays a dark object. It can be very effective when used in the title area of a boxed design. Reverses are very powerful visually and stand out more than screens, so they should be kept only to highlight very important items and used sparingly.

Bold should be used primarily for form titles, section headings and totals.

Leading (Line Spacing)

The addition of extra leading (line space or white space between lines of text) makes it difficult for the reader's eye to find the natural beginning of the next line. This causes the reader to re-read the same line several times.



Graphic Elements

Illustrations and Logos

Adding illustrations and logos are effective in creating an attractive form, but should not be overdone. Unnecessary borders and decorative graphics can detract from the real purpose of the form and make it less effective. The importance of a form is to extract information from the user, not to attract attention with large illustrations.

The LLNL logo should appear on all official Lab forms. In general, the full LLNL logo should appear in the upper left-hand corner of the form. The smaller LLL (3 Ls) icon can appear in any corner. Organizational logos may be appropriate on some forms.

Special Order Form

Name	Location
John Doe	Bldg. 551
Supply Number 34521-23AA	Quantity 3

This logo is too big for the form

Special Order Form

Name	Location
John Doe	Bldg. 551
Supply Number 34521-23AA	Quantity 3

This size of this logo is appropriate

Color

Color can add to the attractiveness of a form. Color headings, instructions, screens, and reverses should be used sparingly. Too much color can confuse the user about what is important. Using several colors in a form can require more memory and increase the time it takes to open the form, scroll through it, and print it. Knowing the type of printer and monitor the user has is also important when considering the use of color. Some people are still using black and white printers as well as black and white monitors; therefore, color would not be useful for those users.

Graphic Elements, Continued

Lines

Lines are used to indicate the space that needs to be filled in as well as to act as a guide for the eye. They can be used to highlight fields and information, or to act as dividers between fields and sections of the form.

Line Width

Line width has a subtle affect on the reader due to contrast. Line widths vary from hairline (1/4 pt) to bold (>=1 pt) and can be solid or broken (also referred to as a leader). We use the hairline most often for its simple, uncluttered, and neat appearance. Bold lines are typically used as dividers and to highlight information. Double hairlines are also excellent dividers. One-quarter (1/4) point lines are the Laboratory standard for electronic forms printed to a laser printer.

Name John Doe	Employee # 123456	
Location	Phone 1-2345	Fax 2-3456

Bold lines

Name John Doe	Employee # 123456	
Location	Phone 1-2345	Fax 2-3456

Hairlines

Leader

A leader is a broken line. A horizontal leader produces movement of the eye from one piece of information to another. A vertical leader serves as an accounting column to separate dollars and cents. Leaders should not be used simply as a graphical element because this broken line is often seen as an instruction to stop.

Desk---------- @ 2 9 9 | 0 0

Pie ---------- $1.25

Caption Design

Overview

There have been three caption design styles in the history of form design: first, open or online caption; next, the underline caption; now designers use the upper left caption.

> ☞ **Captions are frequently set in all capital letters, although initial caps is also acceptable.**

Open or Online Caption

The open or online caption style requires the user to constantly scan each line to locate where each caption begins. The lines are different lengths, making it difficult to estimate how much room is available for entering information, and making it tedious to complete, especially by typewriter. When the form is aligned, the typist is unable to read the caption because the platen has covered it. The typist must remember the caption or has to move the form up and backspace to re-read it.

Open or Online Design	Name_____ Age_____ Address _____ City _____ State _____ Zip _____ Phone: Hm _____ Wk _____

Underline Caption

The underline style was developed to allow more room for the user; however, the user has a difficult time referencing between the caption and the input line. The reader's eye has to make a zig-zag movement between the caption and the beginning of the answer line. This zig-zag movement breaks the user's reading sequence of left-to-right, top-to-bottom. With the underline design, the user reads from lower center, to upper left, then to the right which can lead to entering information on the wrong line.

Underline Design	_____ NAME AGE _____ ADDRESS _____ CITY STATE ZIP

Caption Design, Continued

Upper Left or Box Caption

The upper left or box style efficiently captures the information. This design is the preferred choice. It offers movement left-to-right. The vertical lines give a starting point for both the responder and the person extracting the information. Captions may be set in all capitals, although initial case is also acceptable. Entry text should be set in initial case characters using a serif font such as Palatino or Times; a point size of 10 or 12 is recommended. Caption size is usually either 8, 9, or 10 point Helvetica. These two fonts will add contrast to the form design.

Upper Left or Box Caption Design

NAME (Last, First, MI)			DATE (MM/DD/YY)	
ADDRESS (Street)				
CITY			STATE	ZIP
PHONE (Home)	PHONE (Work)		FAX	

Column Caption

The column style is used when the caption or question asked will receive multiple answers. This is a variation on the upper left style.

STUDENT NAME	CLASS NO.	GRADE	REMARKS

Ballot or Checkbox

The ballot or checkbox style can be arranged either horizontally or vertically. The method of input determines in which direction the boxes are to be arranged. Historically, horizontal ballot boxes were designed for typewriter entry, allowing the typist to see the list without having to move the platen. Vertical ballot boxes were designed for input by hand. Either may be used for electronic form design. The choice is often driven by space and logical flow requirements.

Vertical Ballot Boxes	Horizontal Ballot Boxes
☐ Always ☐ Frequently ☐ Seldom ☐ Never	☐ Red ☐ White ☐ Blue

The checkbox always goes to the left of the caption to make it easier for the eye to reference the caption and the box at the same time.

CORRECT	INCORRECT
☐ Single	Single ☐
☐ Single, head of house	Single, head of house ☐
☐ Married, with children	Married, with children ☐
☐ Married, no children	Married, no children ☐

Proper spacing must be considered for checkboxes. If a caption is too close to an adjacent box, the reader will have difficulty determining which box is associated with the caption.

Correct	☐ Red ☐ White ☐ Blue
Incorrect	☐ Red ☐ White ☐ Blue

Common Uses for Smart Fields

Overview

This section identifies common types of smart fields, describes a few uses for them, and gives step-by-step examples. Programming examples are specific to Shana's Informed Designer® but may help you in understanding other form design software. After reviewing the information once or twice, you can use this section as a quick reference. This is not a complete list of all programming possibilities, only a list of the most common. For a complete list, please refer to the manual for your form design software.

Setting Text Case

In a "Text" field you can set the options for font and case. Case options set how the text will appear regardless of how the user enters it.

Uppercase	JACK RUSS
Proper case	Jack Russ
Sentence case	Jack submitted a proposal to his supervisor. The proposal was accepted immediately. (Sentence case capitalizes the first word after a period, so abbreviations such as a.m. or etc. will make the next word capitalized whether it is the start of a sentence or not.)
Lowercase	the lowercase option is consistent with current practices.
Font options	Font options allow changes in the font name, size, and style, and allow the text to "auto-shrink" if the field is not big enough for the entry.

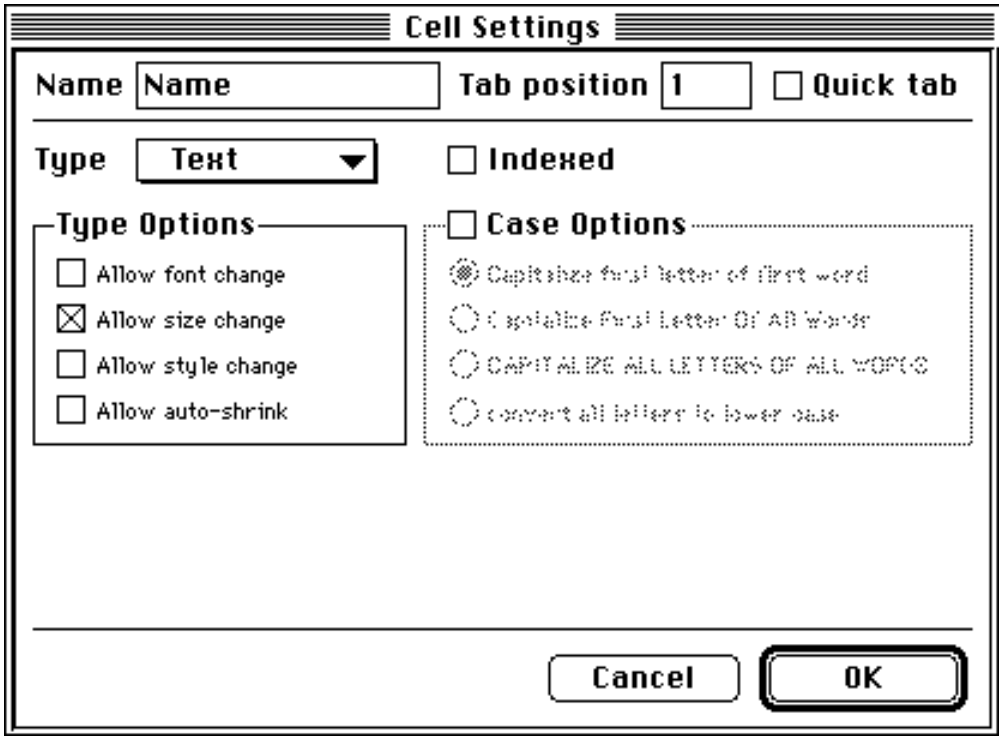
Sometimes the text can auto-shrink to illegibility. Instead of auto-shrink, you should give the user the ability to change font size.

Recommendation

Automatic capitalization should be used sparingly. Rather, let the person completing the form determine appropriate capitalization. Informed Designer® does not always handle capitalization properly when some words are preceded by a period. In addition, some proper names do not begin with capital letters. These are just some of the reasons we determined it best to let the user choose when to capitalize text.

Formatting Text

If the field is a large block of text, make sure the user knows how much space is available. A non-printing color box outlining the field can be used to help define the space limits of the field for the user.

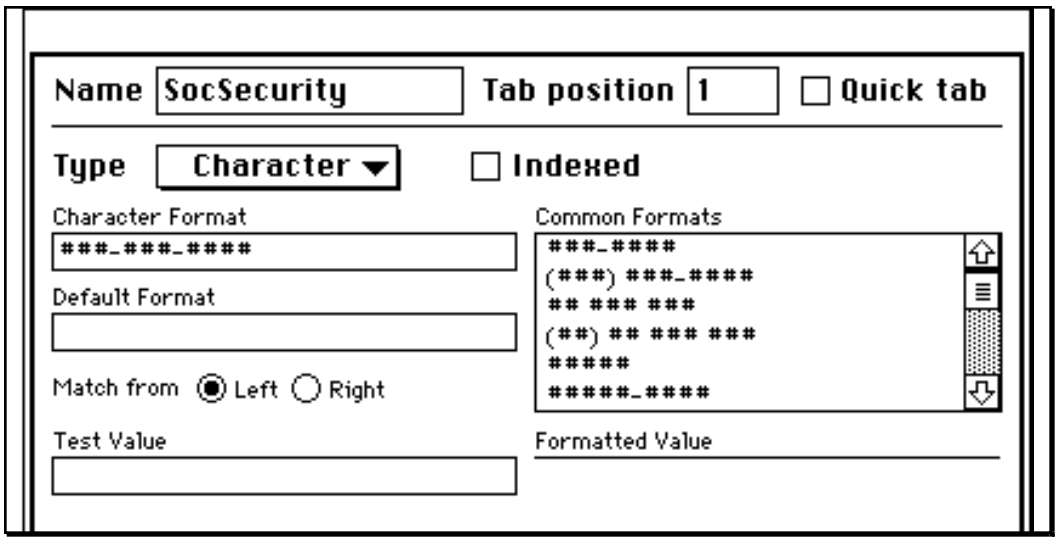


Setting the format for text

Formatting Characters

"Character" fields can accept alpha characters and / or numeric characters. The Character field type treats numbers as letters and therefore can't perform calculations. Common uses of formatted characters are Social Security and phone numbers. By setting the format, the form user need only enter the numbers; they don't need to input parenthesis or dashes.

###-##-####	makes 123456789 appear as	123-45-6789
(###) ###-####	makes 1234567890 appear as	(123) 456-7890
#-####	makes 12345 appear as	1-2345 (Lab extension)
L-###	makes 123 appear as	L-123 (L-code)



Setting the format for Social Security number

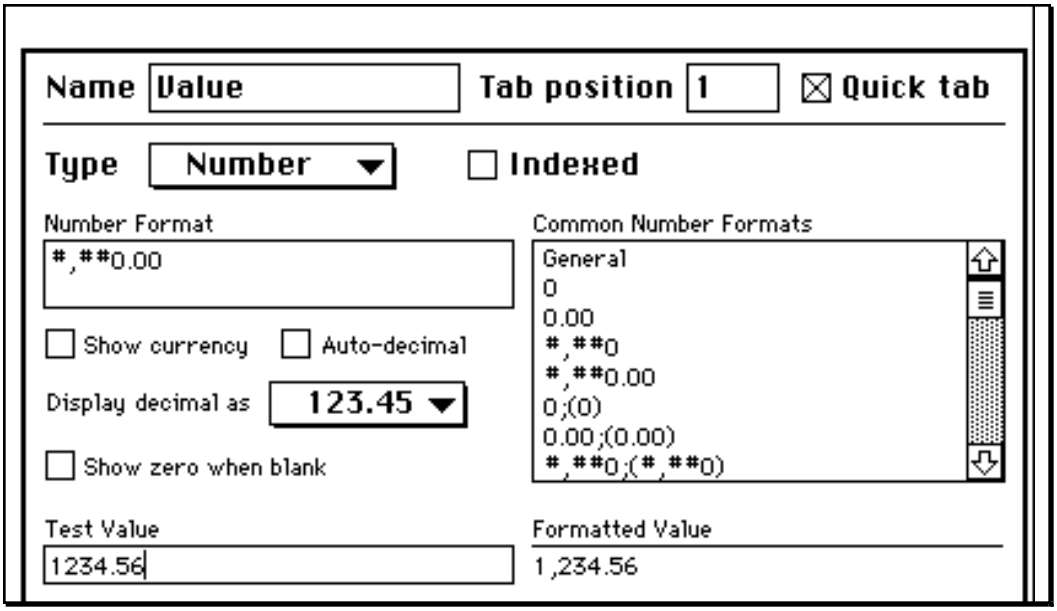
In the Cell Settings dialog box, there are common formats to choose from; select one by double clicking on the desired format.

Formatting Numbers

A "Number" field type can be used for math calculations. Number fields can be formatted to display commas, decimals, and dollar signs. Set formats are helpful if there is a specific number of decimals desired. When many large numbers are used in a form, setting the format to show commas between hundreds and thousands will improve the readability of the numbers.

###,###.##	makes 123456789 appear as	123,456.78
#.###	makes 123456789 appear as	123456789.000

The field can also be set to display or not display zero values.

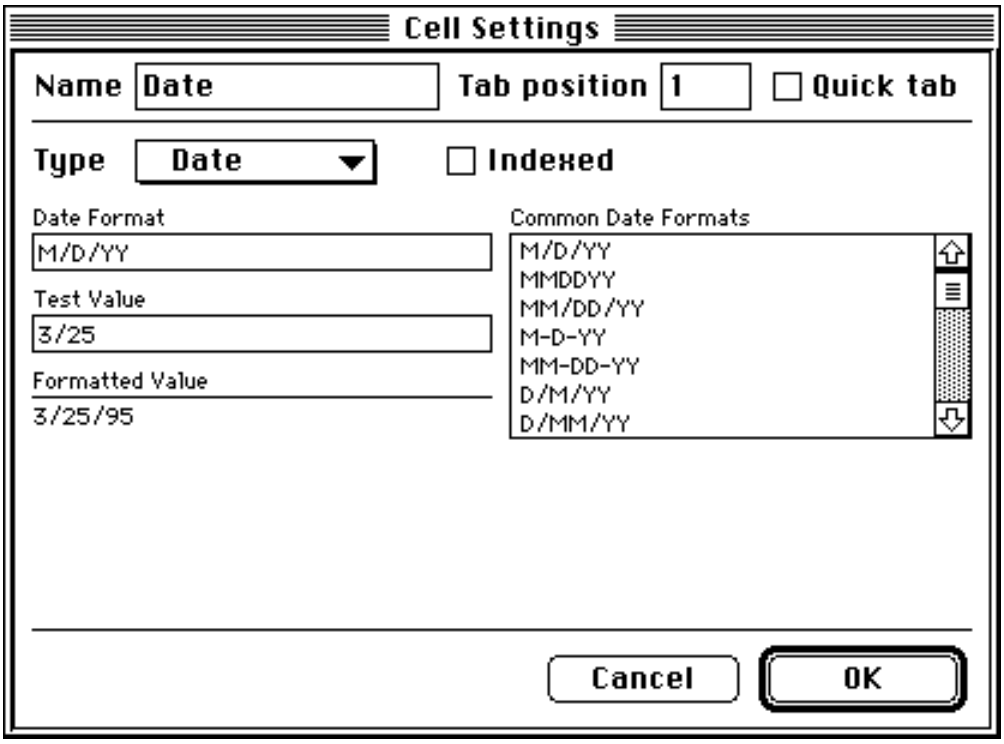


Setting the format for a number

Formatting Dates

A formatted date is a simple function which can present a very polished appearance to the form. A user can type "1/12" and the form will automatically display "January 12, 199x" (whatever the current year is).

M/D/YY	makes 1/7/95 appear as	1/7/95	
MM/DD/YY	makes 1/7/95 appear as	01/07/95	
DD-Mon-YY	makes 1/7/95 appear as	01-Jul-95	**AND**
DD-Mon-YY	makes 7/22/95 appear as	22-Jul-95	
Mon DD, YYYY	makes 1/7/95 appear as	Jan 7, 1995	
Month DD, YYYY	makes 1/7/95 appear as	January 7, 1995	



Setting the format for a date

Indexing fields

"Indexed" fields allow the user to sort and select individual forms using the indexed field within the worksheet and the Find feature. In the Cell Settings dialog box, there is a checkbox used to index a field. For example, indexing the Name field will allow the user to quickly sort the form collection and find a form for "Smith." This capability should be used sparingly because it adds to the memory required to launch the form.

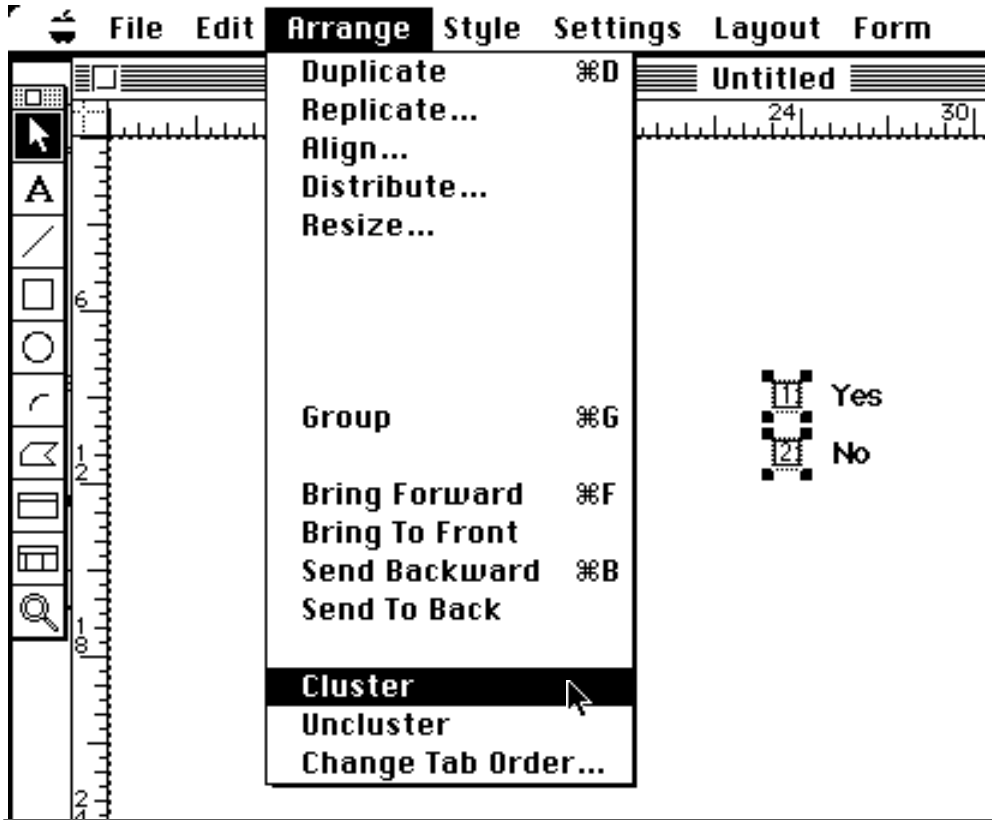
Common Uses for Smart Fields, Continued

Choice Lists

There are two main uses of a choice list. A field may need to have specific answers or may have a standard list of answers that require a large amount of typing. In these cases, a choice list will help the user fill out the form. It is recommend that you use the option to automatically display choices. There is also an option to allow the user to add a value not on the choice list (Edit Choice List). This provides more flexibility for the user, and maintains a degree of consistency for entries. However, we recommend that this option be used only when necessary.

Boolean Operations

Boolean operations deal with true/false answers. They are used for checkboxes and yes/no type questions. Use the Cell Settings dialog box to specify the field as Boolean. The Cluster command is used if only one box in a group of check boxes can be selected. Select two or more check boxes and then select Cluster from the Arrange menu. This will automatically deselect another box when the user attempts to check a second box.

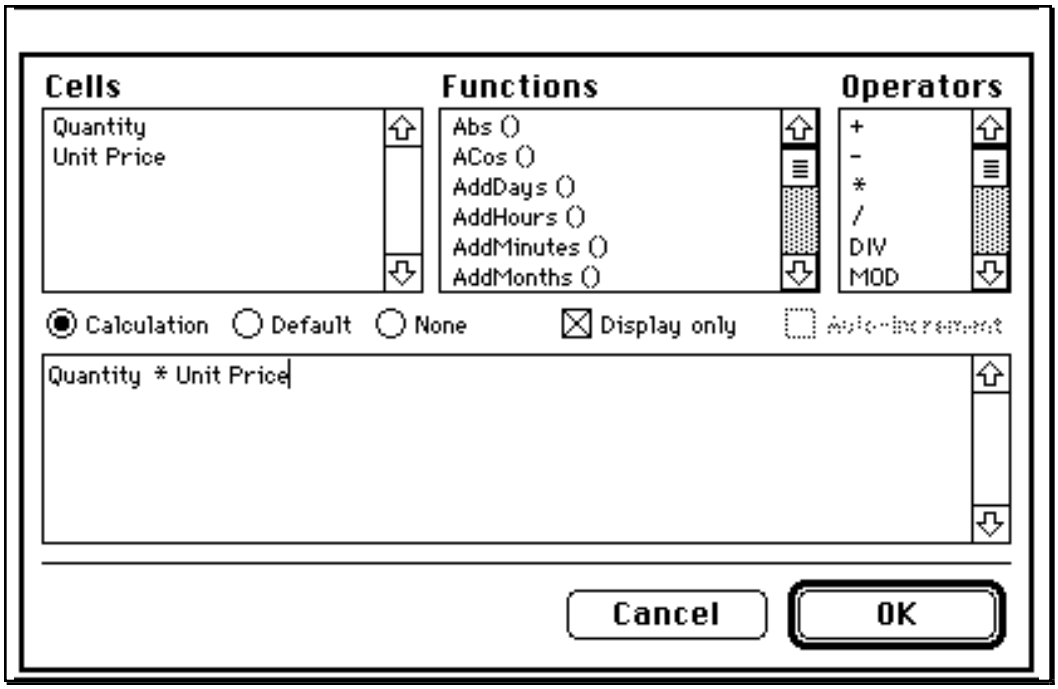


Clustering checkboxes

Math Calculations

Electronic forms can perform automatic calculations for the user. If the form is an invoice and the user enters an order for 6 copies of Informed Manager® at $75 each, the form calculates the total cost as $450.

In this example, the Quantity field and the Unit Price field are used to calculate the Total Cost field. Select the Total Cost field, pull down the Settings menu, and select Value. In the Value dialog box, select the Calculation button and type the following formula: Quantity * Unit Price



Calculating a value

The Total Cost field will then multiply the value of the Quantity field by the value of the Unit Price field. If you do not want the user to change or alter the calculation, check the Display Only box. The form will bypass the calculated field when the user tabs forward. If the calculated value should be changeable by the user, select the "Default" button instead.

> ☞ **A calculated value performs the calculation each time the form is accessed or used. A default value calculates one time only. Use a default value for dates but use a calculated value for most other math calculations.**

If…Then Statements

"If … then" statements are powerful but simple tools. After learning the basic formula, you will be able to use this often and to your advantage.

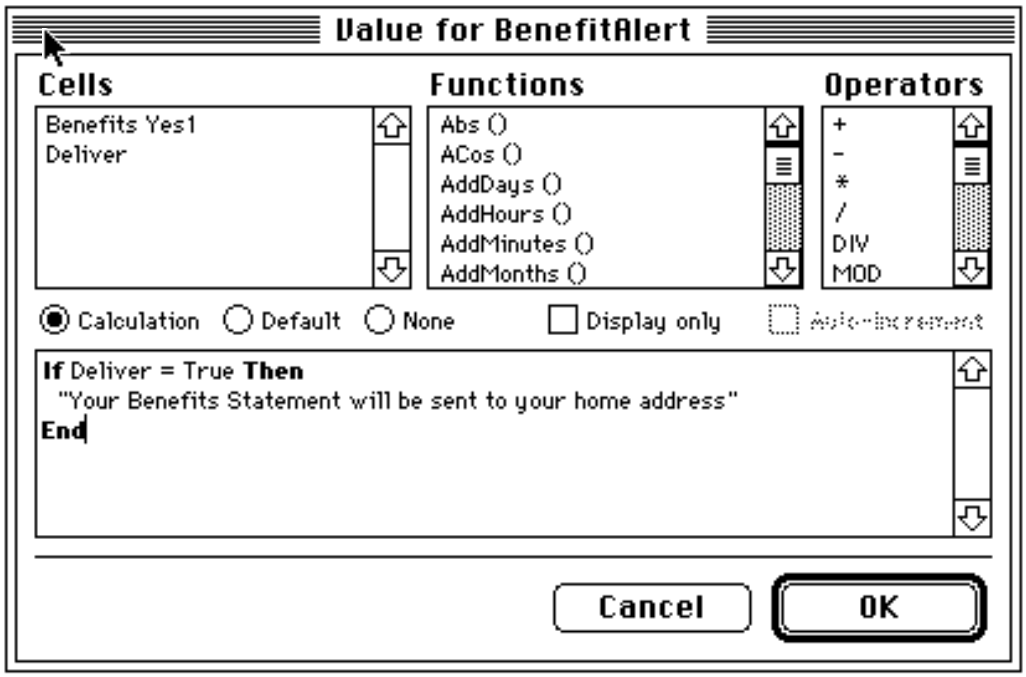
Example

If you file your Income Tax Return by April 15th, **then** you don't have to pay a penalty or file extra forms.

It works in form logic as well.

If <field> = <value>, **then** <do something>

The formula is given a test to perform (<field> = <value>) and based on the test will return a true or false statement that will cause the form to do something.



Another example

In a form there is a checkbox (or Boolean field) called Deliver that asks if the user wants to receive his benefits update at home. Another field on the form automatically displays a message that tells the user that his benefits update will be "sent to your home address" if the user checked the "yes" box.

If…Then…Else

By adding an "Else" statement to a formula, you tell the field what to do if the first condition is not met.

Example to be added in the future.

If…Then… ElseIf

A simple If statement includes a test statement and an action to follow the evaluation of that test statement. For example:

```
If Today = "Monday" then return True with alert "It is Monday!"
End
```

Note: each statement must end with "End" as the final word.

In the example above, the test routine determines if today's date falls on a Monday and returns an alert saying "It is Monday!"

Let's suppose today was not Monday, but we want the form to enter into the cell in question what day of the week it actually is. To do this we can run through a series of If...Then...ElseIf statements. ElseIf is the key to this form of calculation. Our statement might read:

```
If Today = Monday then
    return "Monday"
ElseIf Today = Tuesday then
    return "Tuesday"
ElseIf Today = Wednesday then
    return "Wednesday"
ElseIf Today = Thursday then
    return "Thursday"
ElseIf Today = Friday then
    return "Friday"
ElseIf Today = Saturday then
    return "Saturday"
ElseIf Today = Sunday then
    return "Sunday"
End
```

In evaluating this statement the computer first tests the initial IF statement and determines (from the computer's internal clock) that today is not Monday. Since the statement is False, the portion that read "return 'Monday'" is skipped and the first ElseIf statement is evaluated. If today is not Tuesday either, the process is repeated until the correct day of the week is selected and entered into the form's data cell. While this is not the most efficient way to enter the day of the week, it serves to illustrate how the If and ElseIf statements work.

Alerts

Alerts are a good way to notify the user that some required information has not been entered or that an invalid entry has been made. There are TRUE alerts and FALSE alerts.

If you create a FALSE alert using an If...Then statement
If IsEmpty(Deliver) **then** Return False With Alert "Do not Deliver to Home Address"
and the user has not filled in the Deliver field, the alert displays and the user cannot print or close the form until the Deliver field is entered correctly or the form is cleared with the Clear command on the Form menu.

If you create a TRUE alert
If IsEmpty(Deliver) **then** Return True With Alert "Do not Deliver to Home Address"
and the user has not filled in the Deliver field, the alert displays but the user can bypass the field without entering the required data. Even though the form sponsor wants to ensure good data entry, this method is preferable to locking the user out of the form.

Value Checking

Check routines can be added to fields and table columns to verify that entered values meet form requirements. They can also be used to alert the form user of special circumstances based on the entries made. As in all If…Then…Else sequences, the first line performs a test on which to base subsequent action.

Example:

(1) The following check routine could be used to determine if the user's entry meets certain criteria. In this example the check routine evaluates whether the value entered in a field falls within a prescribed range of authorized expense values: and alerts the user to an out-of-tolerance situation:

```
If TotalCost > 25000 then return True with alert "Your purchase authority for this
account is limited to $25,000."
End
```

Using this form of check routine, the user's entry is evaluated and accepted as a valid entry if the entry meets the criteria, i.e., in this example , if the value entered is under $25,000. If the entry exceeded $25,000 the computer will beep and display the alert explaining why the entry is not valid.

(2) The following check routine is similar. However, by using the False argument, the form will prevent the user from printing or exiting the form until the data entered falls within accepted parameters:

```
If TotalCost > 25000 then return False with alert "Your purchase authority for this
account is limited to $25,000."
End
```

Common Uses for Smart Fields, Continued

Lookups Within the Form

A field can look up information from another part of the form, another form, or a database. To look up and repeat a value that is used elsewhere in the form, pull down the Settings menu and select Value. Select the Calculation button and then click on the cell whose value should be displayed in the new field.

An example of this might be to create a field on each page of a multi-page form that displays a name. When the user enters a name on the first page, it will appear on all subsequent pages.

Looking Up Information from External Databases

Several fields can be automatically completed by gathering the data from external databases. There must be one key piece of information that is common to both the form and the database. For more detailed information about this topic, consult the Database Extensions manual.

LLNL Electronic Form Standards 3

Form Standards

Overview

Following are the LLNL recommended electronic form standards. These standards will provide you with guidelines and resources you can use when developing new forms. Using these standards, you can make sure that new forms are consistent with the look and feel of existing forms. A consistent look and feel ultimately helps the form user by providing a familiar interface.

General Recommendations

Try to eliminate unnecessary words from the form. Be consistent in your use of words and abbreviations throughout the form. If large blocks of text are included on the form, break them up into manageable sizes by using headings, a two column format, and white space.

Standard Fonts

It is important to standardize fonts. Select a font that is both readable on screen and in printed form. Standard fonts of 9 - 14 points are easily read on the screen. Specialized fonts of 7 points and 8 points do not read proportionately on the screen, and some systems may print these specialized fonts poorly. A font of 6 points must be used with caution, because it cannot be read clearly on the screen. If you use a 6 point font, include a message that instructs the user to print out a copy first to view all fields of the form.

Standard fonts installed with the Macintosh Operating System (v7.5) are:

LaserWriter Fonts	ImageWriter Fonts
Courier	Chicago
Helvetica	Geneva
Palatino	Monaco
Symbol	New York
Times	

Use this list as a reference to guide your selection of fonts used on a form.

Recommendation: Complete the form template in one font and the input fields in a contrasting font. For example, use Helvetica for the form layout and Times or Palatino for the field input.

These fonts are NOT installed as part of the Macintosh Operating System:

Avant Garde	N Helvetica Narrow
Bookman	Zapf Chancery
New Century Schoolbook	Zapf Dingbats

Do not use these fonts when designing forms, either for layout or data entry, unless absolutely necessary. Occasionally Zapf Dingbats may be used to print special characters. In particular, do not use N Helvetica Narrow; it has a flawed structure which produces unpredictable results when printed.

Line Width

The Informed Designer® software (v1.3 and 1.4) defaults line width to 1 point which has a tendency to appear too "line-heavy." The LLNL standard for forms is 1/4 point. Heavier line widths may be used in forms if greater emphasis is necessary. Draw all lines in 1/4 point and select heavier line widths later as needed.

Spacing

Space horizontal lines at intervals of 1/3" (double space) or 1/6" (single space) to allow typewriter, hand, or electronic fill-in of the form. A double space equivalent of 1/3" is equal to 2 picas.

Margins (Drawing Size)

Use the Informed Designer® default or reduce the drawing size an additional 1/4 inch to ensure that the form will open on all screen sizes and printers. Never make the drawing size larger than the default. Some printers have difficulty with the default margins, so additional space will help to prevent printing problems. Also, if you design the form with space on all of the edges and it becomes necessary to make the margins larger (smaller drawing size), you will have space available and will not have to significantly alter the form.

LLNL Logo

The LLNL logo should appear in the upper left-hand corner of the form. If the form is a multi-page form, the logo usually appears only on the first page. If a form is too busy or has a very large title, you may decide to use the LLL (3 Ls) icon only. The LLL icon should be placed in a corner.

Fields Entered by Hand

Most forms will still contain fields that are to be completed by hand, i.e., signatures, department notes, etc. In some cases, you may create a field for the name of the person expected or required to sign. In this instance, the field should be a non-tabbing, display-only field. If the form needs to be altered later to accommodate a digital signature, you can de-select the "Display-Only" option (located in the Value dialog box) and add the necessary intelligence to the field.

Multi-part Forms and Laser Printers

Whenever an existing paper form using multi-parts is converted to an e-form, the form owners are encouraged to seek solutions other than multiple copies of an electronic form. Although Informed Designer® does include multi-part form capability, we feel a photocopy would be more cost effective and efficient, especially when dealing with signature requirements. If you must design a form using the multi-part feature, you will need to define the number of parts for the particular form and identify the appropriate label for each printed copy, i.e., Travel Office Copy, Submitter's Copy, Accounting Copy, etc. Use of this feature is transparent to the users. The user will get multiple copies with the appropriate label.

Use of Color

Color on a form can be quite useful. It can highlight important facts. It can visually group certain blocks of information. It can make a form feel less tedious. Color can be particularly useful in alerting the user to areas requiring special attention, for highlighting changes, or providing an example of the entry to be made. We recommend NOT using color on any element of the form that will be printed as the use of color may require the user to change print settings in order for the form to print correctly. Experiment, but be cautious, with customized vs. default primary colors.

Do not overuse color

The amount of time it takes a form to render its color is time taken away from the form being used. Color adds to the size of the form. (This is especially noticeable when launching the form.)

Red alert

Effective, non-printing alert messages can be created as red boxes with bolded white text overlaying the box.

Remember the black-and-white world!

When applying color to a form, test its appearance by switching your monitor to black and white. The form should still be easy to read. As mentioned above, be cautious when using colors that are not the default primary colors of red, blue, and green. A customized color may not appear the same on every color monitor.

Non-Displaying Items

When developing a form, keep in mind the form may exist in two worlds: on screen and on paper. Only display what the user needs to see when completing a form. Let any other information appear only when the form is printed. This is especially important on intricate forms containing a lot of small type.

To make printed items not visible on the screen, cover with a borderless (no pen) white or colored box. Set the box to "Never Print" and make sure the box is layered in front of the object(s) you wish to hide. Whenever possible, cover ALL items to be hidden with ONE box. This is less taxing to the performance of the form.

Non-Printing Items

Blocks of text, fields, or other graphical objects can be defined as non-printing by setting the object as "Never Print." Consider how this capability might be useful. You can use the blank areas on a form to convey additional information on the screen, often using non-printing color text or icons, i.e., tips, alerts, attention getters, notes.

Scanning an Original Form

If you are reproducing an existing paper form for electronic use, it may be helpful to scan the existing form into the computer as a picture. This is helpful in recreating the exact appearance of the form. It is especially useful if the form will later be printed on an impact printer where alignment is essential. If you take this approach, be sure to use the scanned picture of the existing form merely as a template. Trace over all the items needed and then delete the picture. Leaving the picture in the final form will drastically reduce the performance of the form. (We do not recommend scanning forms.)

Form Numbers

Most forms in wide use at the Laboratory have been assigned either a Laboratory form number (e.g., LL6356) or have a DOE form number (e.g., DOE F 7781). You must use the assigned form number followed by a pound (#) sign when electronically reproducing an existing, approved form. Some forms do not carry either of these form identifiers. For these forms, TID (Technical Information Department) will assign a form number.

For forms that do not have an existing paper counterpart, an LLNL number must be obtained from the TID Forms Distribution Administrator (x2-6761). That person will assign a number to the form and request a copy when the form is completed.

If the form being designed has a paper counterpart, there are several requirements. First, if the form is new, ask the sponsor of the form if the form should be available ONLY electronically or printed and maintained in stock as well. If the sponsor wants a paper copy, the Stock Analyst for Laboratory paper forms must be provided with a camera-ready copy of the form for printing. This will ensure a supply of the paper form. Also, the stock catalog number (7600-xxxxx) must be listed next to the LL form number at the bottom of the page: LL9999# v9.0a (1/94) 7600-99999.

☞ **If the form exists as a paper form, the form sponsor may be required to purchase all the forms in stock when a change is made to the form.**

DOE guidelines require that an electronic form number is followed by a pound (#) sign to identify that the form is an electronic version of a standard paper form. For example, if the number on a paper form is LL6356, its electronic counterpart must appear as LL6356# v1.3 1/94.

Version Numbers

For control purposes, every electronic form needs to have a version number. This number is different from the version number of an existing paper form. Each time an electronic form is revised and distributed, the version number of that form is changed. You must use the format "v*n.na*" for all forms created. For example, a revision of an electronic form might appear as LL6356# v2.3 (1/94).

The first version number is always 1.0 and is only incremented in whole numbers when the form undergoes a major revision.

The second number after the decimal point is reserved for feature changes or additions to the electronic form. For example, if a designer of the PAF form v2.0 added the capability of linking the form with data from the PEOPLE database, the electronic version number would change to v2.1.

The third character must be a lowercase letter and is used for "bug fixes" and cosmetic changes within a form. Sometimes after a release, it is discovered that a form crashes on certain machines. The designer would need to fix the problem and release the form as version 2.1a. If another bug was discovered and fixed, the version would change to v2.1b. If the designer then modified a feature, the letter would be dropped and the version number would become v2.2.

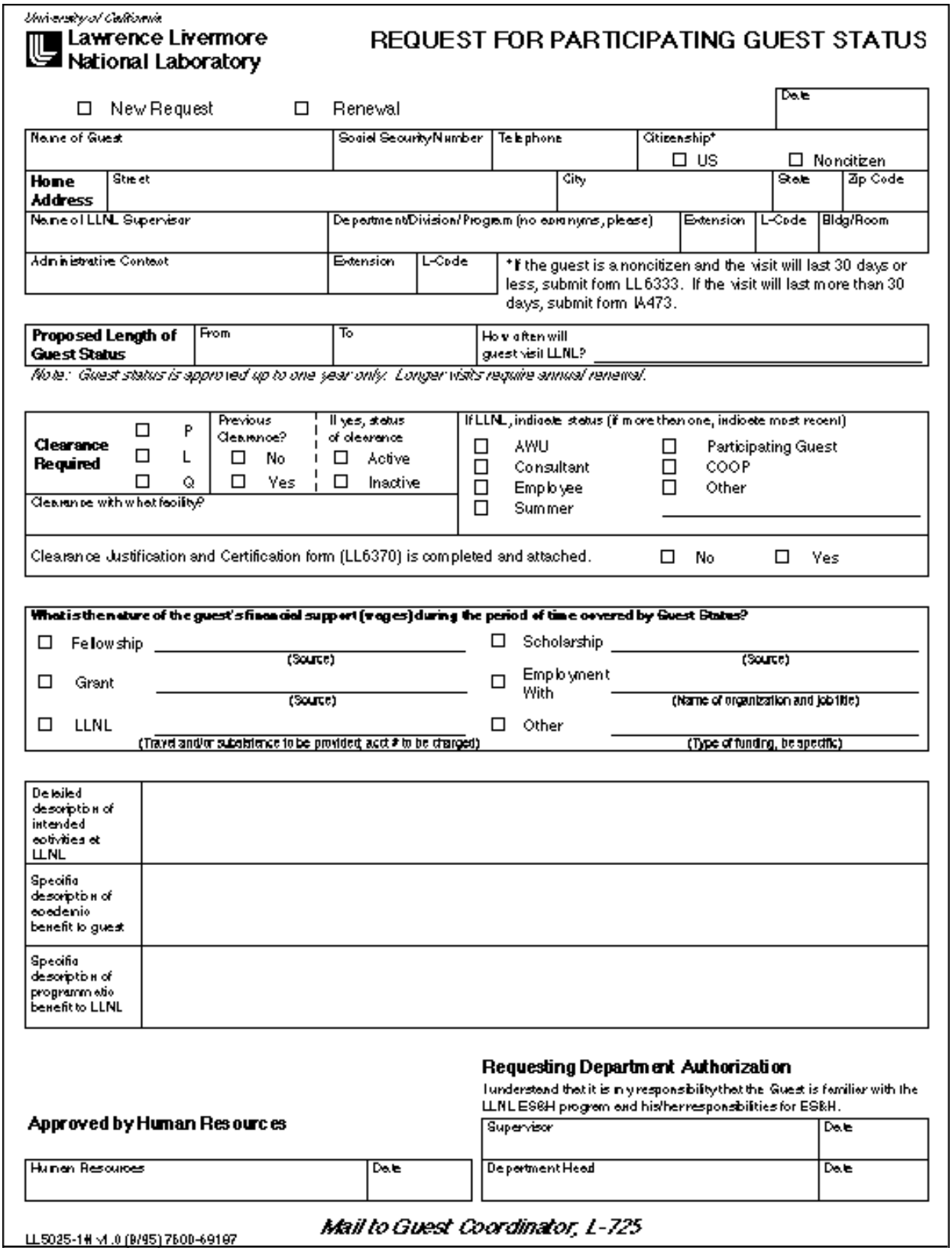
Passwords

To ensure that forms released to the LLNL Forms Server remain unchanged, each form released to the server must have a design password. The E-Forms Registrar assigns the design password just before placing the form on the LLNL Forms Server. When you need to make form modifications, contact the registrar for an unpassworded copy of the form.

Example

The example of a well-designed form on the next page includes the following elements:

- use of upper left caption
- checkboxes to the left of captions
- good use of white space
- limited use of color
- font used is readable on screen
- fields are set to automatically format wherever possible: extension, L-code, state, date
- submission instructions are provided



University of California
Lawrence Livermore National Laboratory

REQUEST FOR PARTICIPATING GUEST STATUS

☐ New Request ☐ Renewal — Date

Name of Guest	Social Security Number	Telephone	Citizenship* ☐ US ☐ Noncitizen

Home Address	Street	City	State	Zip Code

Name of LLNL Supervisor	Department/Division/Program (no acronyms, please)	Extension	L-Code	Bldg/Room

Administrative Contact	Extension	L-Code

*If the guest is a noncitizen and the visit will last 30 days or less, submit form LL6333. If the visit will last more than 30 days, submit form IA473.

Proposed Length of Guest Status	From	To	How often will guest visit LLNL?

Note: Guest status is approved up to one year only. Longer visits require annual renewal.

Clearance Required	Previous Clearance?	If yes, status of clearance	If LLNL, indicate status (if more than one, indicate most recent)
☐ P ☐ L ☐ Q	☐ No ☐ Yes	☐ Active ☐ Inactive	☐ AWU ☐ Consultant ☐ Employee ☐ Summer ☐ Participating Guest ☐ COOP ☐ Other
Clearance with what facility?			

Clearance Justification and Certification form (LL6370) is completed and attached. ☐ No ☐ Yes

What is the nature of the guest's financial support (wages) during the period of time covered by Guest Status?

☐ Fellowship _____ (Source)
☐ Grant _____ (Source)
☐ LLNL _____ (Travel and/or subsistence to be provided; acct # to be charged)
☐ Scholarship _____ (Source)
☐ Employment With _____ (Name of organization and job title)
☐ Other _____ (Type of funding, be specific)

Detailed description of intended activities at LLNL	
Specific description of academic benefit to guest	
Specific description of programmatic benefit to LLNL	

Approved by Human Resources

Human Resources	Date

Requesting Department Authorization

I understand that it is my responsibility that the Guest is familiar with the LLNL ES&H program and his/her responsibilities for ES&H.

Supervisor	Date
Department Head	Date

Mail to Guest Coordinator, L-725

LL5025-1 Rev 1.0 (9/95) 7500-69197

Field Standards

These field standards should be used when you design electronic forms.

Date

We strongly recommend using the familiar formatting M/D/YY. This style eliminates the leading zero on single-digit months and days. Alternate date formats may be used as required by the form; however, be sure to alert the user to the non-standard format in a prominent way (e.g., as a red, non-printing message). Consider setting the form date to default to today's date, if appropriate.

Employee Number

Format as ##?### to automatically allow for the alpha character in non-employee Lab ID numbers. If you are sure that a non-employee Lab ID number will not be entered here, change the format to ######.

L-Code

Format as L-###, Default L-000, align right. This automatically enters the "L-", and inserts leading zeroes (L-003) if a user enters a one- or two-digit L-code.

Phone Number

For on-site extensions, format as #-####, including the hyphen. For an off-site number, format as (###) ###-####. Depending on the requirements of the form, you may want to enter a default value of (510) 000-0000 which would enter 510 as the default area code.

Name

Informed Designer® offers a field type of "Name." This field type has presented problems when entering name suffixes (Jr., Sr., etc.) or if the user enters the name Earl, Dean, the initial "V," or spells the name with an initial lower case letter. Therefore, format a name field as "Text" with the size change enabled, and include instructions to the user as to the required order in which the name should be entered.

Signature Line

Create a signature field and format it as "Display Only." This will allow for the future use of digital signatures, but the user will skip over the signature line until digital signature is available for the form.

Text Fields

Use no special formatting. Allow the user to change the font size where needed. Do not use the capitalize capability. The Informed Manager® product does not know how to distinguish the difference between a period placed after a title (U.S.A.) and a period at the end of a sentence. Also, problems occur when a user enters a word that should not be capitalized. We recommend **not** enabling font change or style change because you have chosen the fill-in font for contrast against the form template. Do not use auto-shrink. It can shrink text to an unreadable size.

Work Page Standards

Contents of the Work Page

The work page is an area of the form that is used to convey important information to the form user. Specifically, this includes form instructions, special formats, form submission instructions, and notes. The work page can be printed in Informed Manager® version 1.4 and later.

The work page must begin with the following header information:

- Name of the form
- Form number with pound (#) symbol (e.g., LL121-7# or DOE F 1121#)
- Designer name(s)
- Standard explanation of the pound (#) symbol

An example:

Foreign Travel Request
DOE F 1512.1#
Electronic form created by Sharlene Markow and James Smith
The (#) symbol following the form number is the DOE designation
for electronic forms

Any instructions or information to be emphasized or information not specified in the Help Message balloons should be included on the work page. The following sections describe information you may want to include on the work page.

Point of Contact/User Referral

Identify a phone number users can call with questions on completing the form. This will direct the user to an appropriate resource for context driven questions. This notation should appear immediately after the heading information:

"For assistance in completing this form, call *Help Name* at extension 9-9999."

Following that notation, we recommend another line referring users who need help with Informed Manager® to the DCSP Hotline:

"For assistance in using Informed Manager®, call the DCSP Hotline at extension 2-0789."

These messages will direct form users to knowledgeable sources of information and reduce phone calls to you for assistance.

Purpose of Form

Include a description of what the form is used for and what organization has given their consent to use this electronic version of their form. This will help to enforce the message that this is the only "official" electronic version of the form and will hopefully dissuade others from creating their own form.

Special Printer Setup

If the form is to be printed to a pre-printed form on an impact printer (i.e., an ImageWriter), include instructions explaining printer setup and alignment.

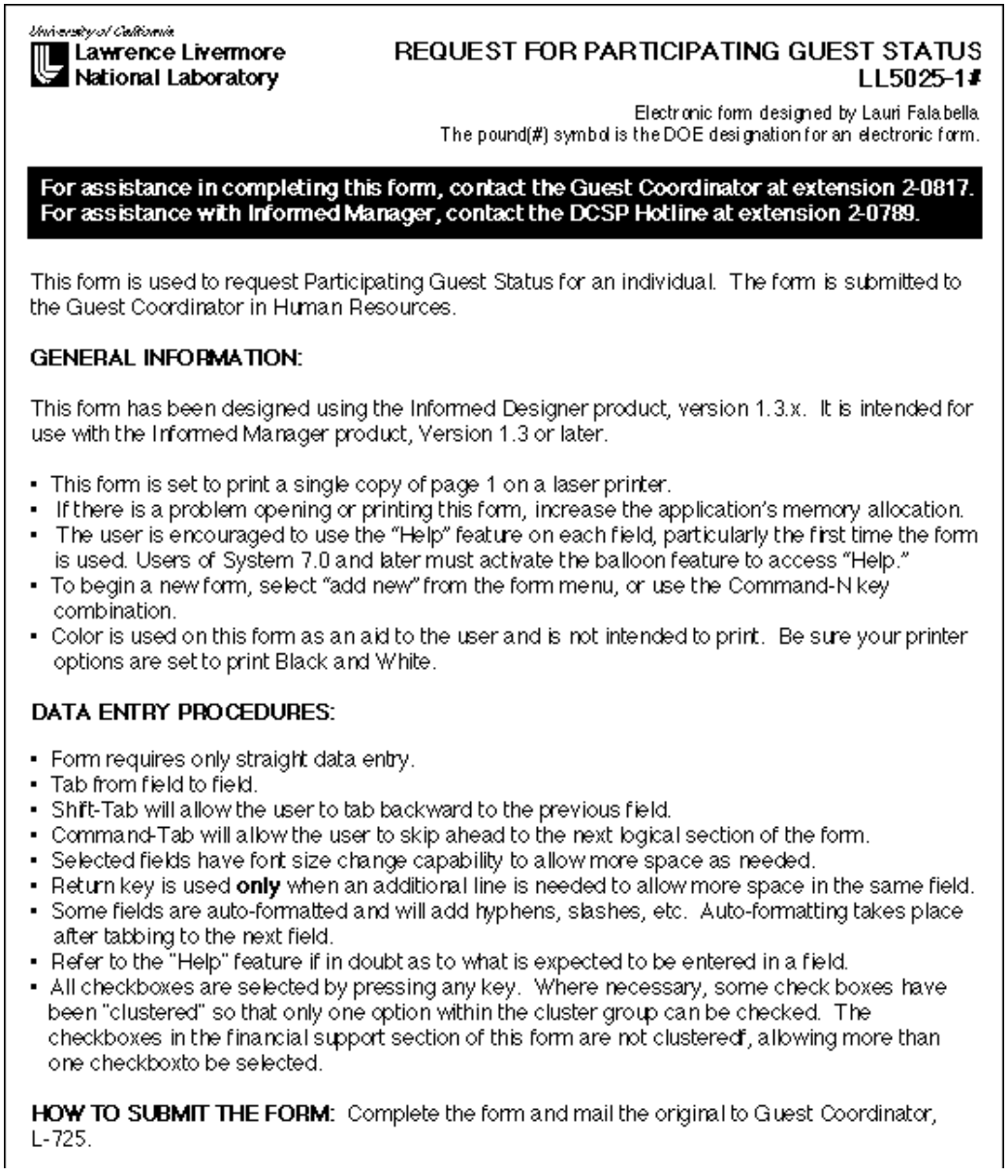
Work Page Standards, Continued

Submission Processes	If the recipient of the form requires certain steps in the submission of a completed form, include those specific instructions. For example: "When printing this form, be sure to put 20# goldenrod bond paper in the laser printer. Property Management will accept no other color."
Processing the Completed Form	Identify the office to receive the completed form; include L-code, phone number, attachments required, signature requirements, time limits, number of copies, etc. Consider the basic information needed by a first-time form user.
Special Feature	If a special feature has been designed that is unique to a particular form, include instructions for its use. This might include use of automatic calculations, special formatting of fields, auto-incrementing values, linking with other forms, or look-ups to external databases.
Reproduction of Instructions	Include instructions usually printed on the back of a pre-printed form, if appropriate. If these instructions pertain to a particular field, include that information in the Help Message for that field.
Color	If color is used to help the user, state that the color is non-printing and only intended to aid the user. If other color conventions are used, describe them and how the user should deal with them. Color may be used to attract the user to a non-printing instruction or arrow, or to cover an area that is for internal use only.

Example

This example of a well-designed work page includes:

- all required elements
- good use of white space and color (never intended to print)
- basic instructions as well as special instructions specific to the form



University of California
Lawrence Livermore
National Laboratory

REQUEST FOR PARTICIPATING GUEST STATUS
LL5025-1#

Electronic form designed by Lauri Falabella
The pound(#) symbol is the DOE designation for an electronic form.

For assistance in completing this form, contact the Guest Coordinator at extension 2-0817.
For assistance with Informed Manager, contact the DCSP Hotline at extension 2-0789.

This form is used to request Participating Guest Status for an individual. The form is submitted to the Guest Coordinator in Human Resources.

GENERAL INFORMATION:

This form has been designed using the Informed Designer product, version 1.3.x. It is intended for use with the Informed Manager product, Version 1.3 or later.

- This form is set to print a single copy of page 1 on a laser printer.
- If there is a problem opening or printing this form, increase the application's memory allocation.
- The user is encouraged to use the "Help" feature on each field, particularly the first time the form is used. Users of System 7.0 and later must activate the balloon feature to access "Help."
- To begin a new form, select "add new" from the form menu, or use the Command-N key combination.
- Color is used on this form as an aid to the user and is not intended to print. Be sure your printer options are set to print Black and White.

DATA ENTRY PROCEDURES:

- Form requires only straight data entry.
- Tab from field to field.
- Shift-Tab will allow the user to tab backward to the previous field.
- Command-Tab will allow the user to skip ahead to the next logical section of the form.
- Selected fields have font size change capability to allow more space as needed.
- Return key is used **only** when an additional line is needed to allow more space in the same field.
- Some fields are auto-formatted and will add hyphens, slashes, etc. Auto-formatting takes place after tabbing to the next field.
- Refer to the "Help" feature if in doubt as to what is expected to be entered in a field.
- All checkboxes are selected by pressing any key. Where necessary, some check boxes have been "clustered" so that only one option within the cluster group can be checked. The checkboxes in the financial support section of this form are not clustered, allowing more than one checkboxto be selected.

HOW TO SUBMIT THE FORM: Complete the form and mail the original to Guest Coordinator, L-725.

Designing a Form 4

Planning the Form

Methodology for Collecting Information to Design a Form

Use a worksheet with the following headings: Item, Use, Source, Required and Approval.

1. What is the goal of the form? Start with a "statement of need." Use this to identify the "title" of the form at the top of the worksheet. Also, this establishes the purpose of the form and helps to verify that the form is meeting this need.

2. Brainstorm with the customer (and users, if appropriate) about the items to be included on the form. List each item on a separate line on the worksheet. Do not value-judge any of the items.

3. Determine the use (purpose) for each item and record it in the Use column on the worksheet (possible elimination of items).

4. Determine the source of each item and record it in the Source column on the worksheet (possible elimination of items).

5. In the Required column, list the legal or procedure requirement for each item. This may help determine the source.

6. Next, you must verify that "use" is justified and the source is available. If the item is essential to the system and is available, it should be approved.

Collecting Customer Requirements

Planning a form is essential before you design it on the computer. There are many elements to consider before creating the form. Many decisions about what to include on a form can be determined by meeting with the form sponsor as well as the form users.

When customers don't understand electronic forms very well, they may need to be educated on the numerous features that can be incorporated into an electronic form. There could be some features that would make obtaining information easier. We recommend meeting with the customer to conduct an analysis of the form and process. Listed below are questions to ask the customer, and some information to help you during the design process.

Is the form necessary? Can it be eliminated? Will the form be used only once?

If this is the case, an electronic form will not be needed. The amount of time needed to design an electronic form would not be cost effective. The form can be created in a word processing application such as Microsoft Word, in a graphics application such as MacDraw, or even in a layout application like Aldus PageMaker.

Will the form be used frequently by many people?

If yes, it would be cost effective to spend the time designing an electronic form.

How can the current form be improved?

Discuss the current form and the information it gathers.

- What is the source of the information and can it be automatically retrieved?
- What is the form distribution and do all recipients need a copy?
- Is all the required data on the form?
- Is there unnecessary data on the form?
- Do the form items appear in the proper order?
- Are the form captions clear and understandable?
- Are there opportunities to reduce fill-in by using choice boxes or checkboxes?
- Can the form be submitted electronically?
- Is the form a candidate for using digital signatures?

The more information you obtain before designing a form, the more time you will save during revision cycles. Don't be afraid to ask what type of information is needed—Name, Phone, etc. It is impossible to design an effective form without the required information.

Has a similar form been created before?

Could any of the forms on the LLNL Forms Server meet the customer's needs with minor modifications? Using an existing form would be more cost effective since it would not require starting from scratch.

How many pages are needed? How big should the form be?

The number of pages may be determined by how much information needs to be included on the form. The size of the form may also be decided by the amount of information and the number of pages agreed upon. Determining the size of the form will also determine the font size needed to fit the information into the form. In addition, the customer may have some requirements relating to how large the form should be. Many customers feel it is important to keep the form to one or two pages.

What type of printer will be used for printing this form? Laser Writer? Dot Matrix? Color Laser Writer? High-Resolution Output Phototypesetter?

The type of printer will determine if color (for printing) should be used. It will also determine what type of graphics you might want to use and the particular font that should be used. For more information about printers and the use of color refer to Chapter 2.

What about illustrations and logos?

Illustrations and logos should be used sparingly.

Do you want screens, reverses, and/or color?

Screens, reverses, and color are all useful on forms, but it is important to use these tools sparingly because they can overpower the form. Follow the guidelines in Chapter 2 to make sure that the form is readable and usable for collecting the proper information.

Is there another form or database that you would like linked to this form?

With the intelligence of Informed Designer®, forms and databases can be linked to extract information without having to enter the information manually. Providing this feature makes completing forms much easier. If there is a way to extract information from another source, the information won't have to be located and added by the user, and the form will take less time to complete. Decide what you want to link before you design the form. The information needed for the field must match the information that is being extracted from another form or database. Refer to Chapter 5 for more information.

Will some of the information be automatically entered and for display only?

There may be some information on a form that will never be changed by the user. It should be formatted as "display only." The user can never tab to a display only field, and cannot change the information without using Informed Designer®. Be sure to put a help message in display only fields explaining why the user does not need to enter information. If a user could click into a field but not enter data, he or she would be confused.

Does a current date or time need to be included on the form?

These values are called logical defaults and can be automatically built into the form. If the default value is the only acceptable value, the field should be formatted as "display only." This will keep the user from being able to tab to the field and change the entry. The current date and time can be filled in automatically using the computer's date and time settings.

Will any of the fields be a calculated value (cost, counts, etc.)?

Build the formula into the form to allow the computer to do the calculations. This will make entry of the information easier and the calculations more accurate. For forms with repetitive calculations, minimize processing time by coding a field to copy an (already calculated) value from another field rather than running the calculation a second or third time. If the form has many calculations, consider doing the calculations in another software package and importing the results. Informed products are not efficient for use with extensive mathematical calculations.

Will some of the fields need specific information?

Some fields of a form may require only specific information such as a date or a phone number. Using the Character cell type can rigidly define the length and format of a field entry. Some fields may need further restrictions such as when an entry must be within a certain range or when it must conform to specific data entry rules.

A check formula can be written to verify that an entry meets specific criteria. The formula is created with the Check command in the Settings menu. Many examples of formulas are found in the User's Guide for Informed Designer®. When the information doesn't meet the formula criteria, an alert message may be written to explain why the error occurred with helpful reminders of important rules that must be followed to meet the criteria. These alert messages are created with If statements (for example, If x=y, type y. Else Return with Alert 'x must = y').

Can some of the information be displayed as checkboxes (Boolean fields)?

Determine if ONE and ONLY ONE checkbox needs to be checked, or if there will be several choices that are acceptable. By clustering the checkboxes, only one choice is retained. Specific instructions should be included to tell the user one or more boxes can be checked.

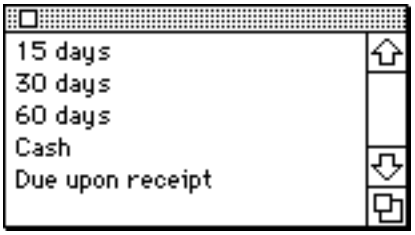
■ Yes ☐ No (One and only one possibility, clustered)

OR

■ Title ☐ Index ■ Contents (More than one possibility)

Can some of the information be displayed as choice lists? What would the choices be?

Can a pop-up choice list be used? Work with the customer on the choices to be displayed. Keep the list short; otherwise, the user will spend more time reading the choices than typing the information.



Use pipes (| |) to separate explanatory data from data to be entered. This will help describe to the user the selection needed and will only enter the data the form recipient needs.

Does the user need to see everything on the form?

Some items on the form may not be necessary for the electronic completion of the form. Only display what the user needs to see when completing a form. To make these items invisible on the screen, cover with a borderless white box or overlay a color mask. Set the box to "Never Print" and make sure the box is layered in front of the object(s) you wish to hide. This information will be visible when it is printed, but hidden from the user on the screen.

Should some items not print?

Blocks of text, fields, or other graphical objects can be defined as non-printing. Blank areas on the form may be used to convey additional information on the screen, often using non-printing color text or icons. Examples of this might be tips, alerts, attention getters, etc.

Steps for the Designer

As you can see, it is important to work closely with the form sponsor to determine form requirements and understand the sponsor's needs. Once the form is designed, the sponsor should review the form (and test it if they have the software) to ensure that it is satisfactory and all required elements are included.

When the customer is satisfied with the form, send the form to the E-Forms Registrar to begin the testing process. You can expect this process to take at least two weeks. The registrar will compile the testers' comments and return them to you. You may have some decisions to make which require you to meet again with the form sponsor.

If the testers have raised issues that are good suggestions but would change the form layout and content, it is strongly suggested you get feedback from the form sponsor prior to making those changes. Once the changes have been made, return the form to the E-Forms Registrar for final review and placement on the server. You will be notified through e-mail by the registrar once the form has been placed on the server. Chapter 5 explains the process for having a form officially tested and added to the LLNL Forms Server.

Laying Out the Form

Layout Procedure

Once the customer has made most of the decisions about what needs to be included on the form, you can begin layout of the form. You can sketch a rough draft of the layout on paper before using Informed Designer®, or you can draw it directly in Informed Designer®. These are the steps that you might follow to design a form:

Step	Action
1	Launch Informed Designer®.
2	Set the page size of the form and the orientation using the Page Setup command on the File menu.
3	There are certain layout tools in Informed Designer® that can make designing a form easier. The following list shows the recommended settings to use. Layout: Show ruler Show grid (recommended) Show specs (optional) (measured from top or left boundaries only) Ruler options: Ruler measure: picas Home position of the ruler: top left edge; drawing edge Grid options: Drawing accuracy: 1152 dpi Draw grid: behind objects Horizontal and vertical grids: 2 divisions per pica, draw every 4 lines Guide options: Sensitivity of the guide: 2 pixels Draw guides: in front of objects Snap to guide: center of object frame Default Values for Tools (double click on tool to set): Text: identify font, size, and style of form template Line: width 1/4 point Rectangle: line width 1/4 point, fill none Oval: line width 1/4 point, fill none Arc: line width 1/4 point, fill none Field: select field without title and outline Table: select table with appropriate style Paint (Settings): fill none, line width 1/4 point

Step	Action (continued)
4	Set the form size from the Drawing Setup command on the File menu. You can generally leave the default drawing size as it is displayed. However, if necessary, be sure to offset the drawing size to accommodate the printer margin (printer margins are between 1/4 and 1/2 inch). It will also have to be resized if you are using the landscape orientation. Keep in mind that with landscape orientation, the full width of a form can only be seen on a large screen monitor. To accommodate the various print areas available on printers, do not draw to the maximum allowed.
5	Assign a meaningful title to each of the fields (invoice date, account number, etc.), and select the type of field that is appropriate (text, number, date, etc.) from the Cell command on the Settings menu. You can also assign a specific format that will be used in the cell from this dialog box.
6	When several fields have the same attributes, remember the power of Informed Designer's® features such as Duplicate and Replicate on the Arrange menu. These features duplicate field size, settings, calculations, help messages, etc.
7	When positioning or sizing fields, use the Specs Palette. To display the palette, choose the Show Specs command on the Layout menu.
8	Add graphics by selecting the Import command on the File menu. Graphics may need to be resized to fit. Position the pictures using the Specs Palette or simply drag them to the appropriate area. Add any extra line art (such as boxes, lines, etc.) from within Informed Designer.®
9	Add screens, color, or reverses as required by the form.
10	Add intelligence to the form where appropriate (calculations, linking to another form or database, automatic time, or automatic date). Use the Value command on the Settings menu to write the formula for calculations or for the automatic date or time (defaults). Use the Lookup command on the Settings menu to link various fields to other forms or databases. You may want to add checks and alert messages to make sure the appropriate information is entered in the field. These can be added from the Check command on the Settings menu. If you want to add choices to certain fields, use the Choices command on the Settings menu. Refer to Chapter 5 for more information on field intelligence.

Laying Out the Form, Continued

Step	Action (continued)
11	Check the tab order. The default is the sequence in which you created the fields while designing the form. To change the tab order, select the field and select the Cell command on the Setting menu. Change the number of the tab position. Do this for each field until the proper tab order is achieved, or select Change Tab Order on the Arrange menu. To permit the user to tab to certain areas of the form quickly, make the destination field a Quick tab select the destination field, choose the Cell command on the Settings menu and check the Quick tab box. To use a Quick tab, the user presses Command+Tab. This bypasses the normal tab order and allows the user to tab only to those fields designated as Quick tabs. When the field immediately following a table is a Quick tab, the user can leave a table before filling in all the fields by pressing Command+Tab. Tables are automatically set as Quick tab fields.
12	Add Help Messages. Use discretion in selecting which fields need help messages. Remember to consider the novice form user. Choose the Help Message command on the Settings menu. The Help Message dialog displays for you to enter instructions.
13	Test the form to see if it performs as intended. Use the Test command on the Form menu. Enter data in all fields and check: • Are the tabs working properly? • Is there enough room in each field to enter the needed information? • Does the text look clear and easy to read? • Are the fonts consistent for all fields? • Does each field have a unique and meaningful title? • Did fields with default values work propertly when overwritten? • If the user can change the font size, are there instructions to the user that the size can be changed? • Did the checkboxes work? • Did the clustered Boolean Fields accept only one choice? • Do the screens, colors, and reverses look and print properly? • How do they look on a monochrome monitor? • Did the dates and times appear correctly? • Did the calculations work properly? • Did the information that was linked come in properly? • Try different test cases to make sure that alert messages appeared when required conditions were not met.
14	If this is an authorized Lab form, add the identification in the lower left corner of each page of the form set, and include the LL form number, revision number, revision date, and (#) symbol to indicate that it is an electronic form. All forms that are Lab authorized must have a form number. To have a form authorized and a number assigned, call the TID Forms Distribution Administrator (x2-6761).

Laying Out the Form, Continued

Step	Action (continued)
15	If this is a form for Lab-wide use, create a work page. Click on the W in the lower margin of the window. The work page must contain: • the form title • the form number (LLNL or DOE) • the designer's name • the pound (#) symbol explanation • the name of the person the user can call for assistance The work page should also include: • a brief discussion of how the form is used • identification of the form's sponsor • information about printer setup requirements or limitations • information about any special submission process • a list of special or new electronic form features • information about sections of the form that will be printed but not displayed • if a font is used that is not routinely found with a "basic" Macintosh, list the special font used and where it is used Anything that is unusual about the form should be mentioned on the work page. Refer to Chapter 3 for more information about the work page.
16	When everything is working properly, open the form in Informed Manager® to set the internal flags that allow users to open the form.
17	The form is now ready for the official testing process. Refer to Chapter 5 for more information.

Review, Registration, and Testing 5

Review

Design Completion Checklist

After the design process comes the form review, registration, and testing process. Use this design checklist to review your form.

☞ **Besides using this checklist, you may want to send the form to users in your area as preliminary testers before sending the form to the E-Forms Registrar. However, you should emphasize that the form is not officially released until it appears on the LLNL Forms Server. One way to ensure the form is not used is to place a statement at the top of the form (that prints) that says "Test Form, Not for Official Use."**

Step	General Layout Check	Done
1	Page W has been completed and includes the following required entries: • Form Title • Form number (e.g., LL121-7# or DOE F 1121#) • Designer Name(s) • Standard pound (#) symbol explanation • Person to call for help using the form • Refer to the DCSP Hotline (2-0789) for help using Informed Manager®	
2	Page W includes the following *recommended* entries: • A brief discussion of how the form is used • Identification of the form's sponsor • Any printer setup requirements or limitations. Laser printer only? Dot-matrix? Both? Color Printer? Other? • Description of any special submission process (if applicable) • Special or new electronic form features (if any)	
3	If there are non-displaying sections of the form, indicate on Page W that the sections will be printed but will not be displayed on the screen (such as fine print, boiler plate, etc.) .	

Step	General Layout Check (continued)	Done
4	All fonts used are among those routinely found with a "basic" Macintosh. If other fonts are used, identify on Page W which special fonts are used and where they are used.	
5	Fields to be hand-entered by the user, such as manual signatures, are formatted as "display only" and have help messages explaining that they are not for data entry.	
6	If the form replicates a multi-part form, multi-part features of Informed Designer® have been used and tested.	
7	Color, if used, is applied to aid the user. For example, color may be used to highlight non-printing notes to the user, or to indicate which fields *do not* require data entry (e.g., automatically calculated fields, defaulted fields, etc.).	

Step	Field Value Check	Done
8	All defaulted fields, intended to be display only and not changed by the user, have been formatted as "display only." These instances have been tested and are noted on Page W.	
9	Fields in which the user may override the default entry have been coded appropriately and tested. These instances are noted on Page W.	
10	Dates have been defaulted to "today" where applicable for the form.	
11	Date fields are coded "display only" where applicable.	
12	Date formats are consistent throughout the form and comply with the form sponsor's requirements.	
13	Fonts are consistent for all form fields.	
14	The field format for each field has been checked for accuracy and consistency (font, size, alignment, color).	
15	Each field has been given a unique and understandable name / designation.	
16	"Help" messages appear in all fields that call for user-entered data and have been tested successfully (limit of 256 characters in each help message).	

Step	Field Value Check (continued)	Done
17	The choice list for each field has been checked for accuracy and consistency, and each choice has been exercised satisfactorily.	
18	The tab order has been tested for performance and compliance with the desired sequence and validated.	
19	The Command-tab function and sequence have been checked for performance and the desired sequence.	
20	For each field employing user alerts, the alerts have been set and functionally checked.	
21	For each field employing conditional arguments, testing for accuracy and reliability has been completed.	
22	All fields using "Yes / No" or other Boolean choices have been set and tested so that only **one** choice is accepted by the form, if applicable.	
23	Boolean fields have been "clustered" so that only one choice may be entered, if appropriate.	
24	Required fields are used sparingly if at all. If used, appropriate notation on Page W is required.	
25	Required field testing has been completed for each field employing "required" arguments.	
26	Pop-up alerts are provided to inform users that data entry is "required."	
27	LLNL form identification appears in the lower left corner of each page of the form set and includes form number, revision number, revision date, and (#) symbol to indicate that it is an electronic form. If the form is also available through Central Supply, the stock number is also noted. For example: LL6543#, v1.1a (9 / 92) 7600-12345.	
28	For <u>every</u> field that employs calculated values, the calculations have been validated against a known correct form to assure accuracy.	
29	When color is used on a form, the form has been tested on a **non-color** Macintosh (or by changing the monitor setting to black and white) to determine that the color settings are acceptable for use with a monochrome monitor.	

Review, Continued

Step	Performance Check	Done
30	The form has been successfully printed on each type of printer for which it was designed. • Laser • Color • Dot Matrix • Other _____	
31	The form has been successfully tested on the following Macintosh models: • Macintosh II Models • Quadra / Centris Models • LC Models • Mac Plus and SE • Powerbooks • PowerPCs	
32	The form sponsor has fully approved the completed form.	
33	Close the form in Informed Designer®, then reopen and save it in Informed Manager®. This sets internal flags so that the form can be opened by users. Be sure that all forms are removed so that "No Forms" is indicated on the status bar at the bottom of the form.	

Registration and Testing

Overview

The LLNL E-Forms Registrar maintains a folder of approved electronic forms available to all LLNL employees able to access Open LabNet. The folder is on the LLNL Forms Server located in the AIS Zone. Forms on the LLNL Forms Server comply with all form conventions and DOE regulations regarding electronic forms.

The LLNL Forms Server contains the latest revision of all "official" electronic LLNL/DOE forms. Lab users of electronic forms are encouraged to download the form template from the server to ensure they are working with the latest version. Form names include the version number to help users determine which version is current.

LLNL form sponsors reserve the right to reject forms submitted to them for action on e-form versions other than the most recently approved version and may reject forms that have not passed review and certification.

Registering a New Form

To submit a new form design for review and entry into the LLNL Forms Server, submit your form and the Electronic Form Registration form to:

Lauri Falabella, E-Forms Registrar, through QuickMail

You can also send a diskette with the completed Electronic Form Registration form and your electronic form to Lauri Falabella, E-Forms Registrar, L-548.

A copy of the Electronic Form Registration form is included at the end of this chapter. Be sure to provide information about items that need to be tested such as required fields, display only fields, etc. Also summarize any important information from the Design Completion Checklist on the registration form. For example, if you tested your form on a II fx and a II si but not on a II ci, include that information. Or, if you designed a field that does not conform to the checklist recommendations, include that information. This form provides the registrar with a quick one-page reference for documentation of the form.

Modifying a Registered Form

To modify a registered form, request an unpassworded version of the form from Lauri Falabella, E-Forms Registrar. After you have made your changes, submit the modified form with the Electronic Form Registration form to: Lauri Falabella, E-Forms Registrar, through QuickMail.

You can also send a diskette with the completed Electronic Form Registration form and your electronic form to Lauri Falabella, E-Forms Registrar, L-548.

☞ **As a professional courtesy among form designers, form users, and the E-Forms Registrar , another designer should not change the form once it is approved and released to the LLNL Forms Server. To eliminate user confusion as to the most recent and correct version of the form, there must be only one official version. If form designers or form users have changes or improvements to suggest, they should contact the form designer, the form sponsor, or the E-Forms Registrar .**

The Testing Process

After a form has been submitted to the E-Forms Registrar, it is reviewed and tested. The registrar then sends the form to a group of alpha testers for user and designer testing. At least one of the testers should be an actual user of the form to check for contextual problems.

Testers are looking for a variety of things, many of which are included on the checklist in the previous section. In addition, testers look for the following:

- spelling
- punctuation
- grammar errors
- use of white space
- choice lists
- error checking
- smart fields
- use of lookups
- functionality and efficiency in the form

One way to test a form is to try to enter something invalid into a field. For example, if a field is coded as a date field, try to enter something other than a date to see how the form reacts. It should only allow valid date entries.

Within two weeks, the alpha testers respond to the E-Forms Registrar with their comments. The registrar reviews the comments and may make the changes if they are extremely minor. Otherwise, the form will be returned to the designer for modification. After the recommended modifications have been made, a final beta test is done by no more than two testers.

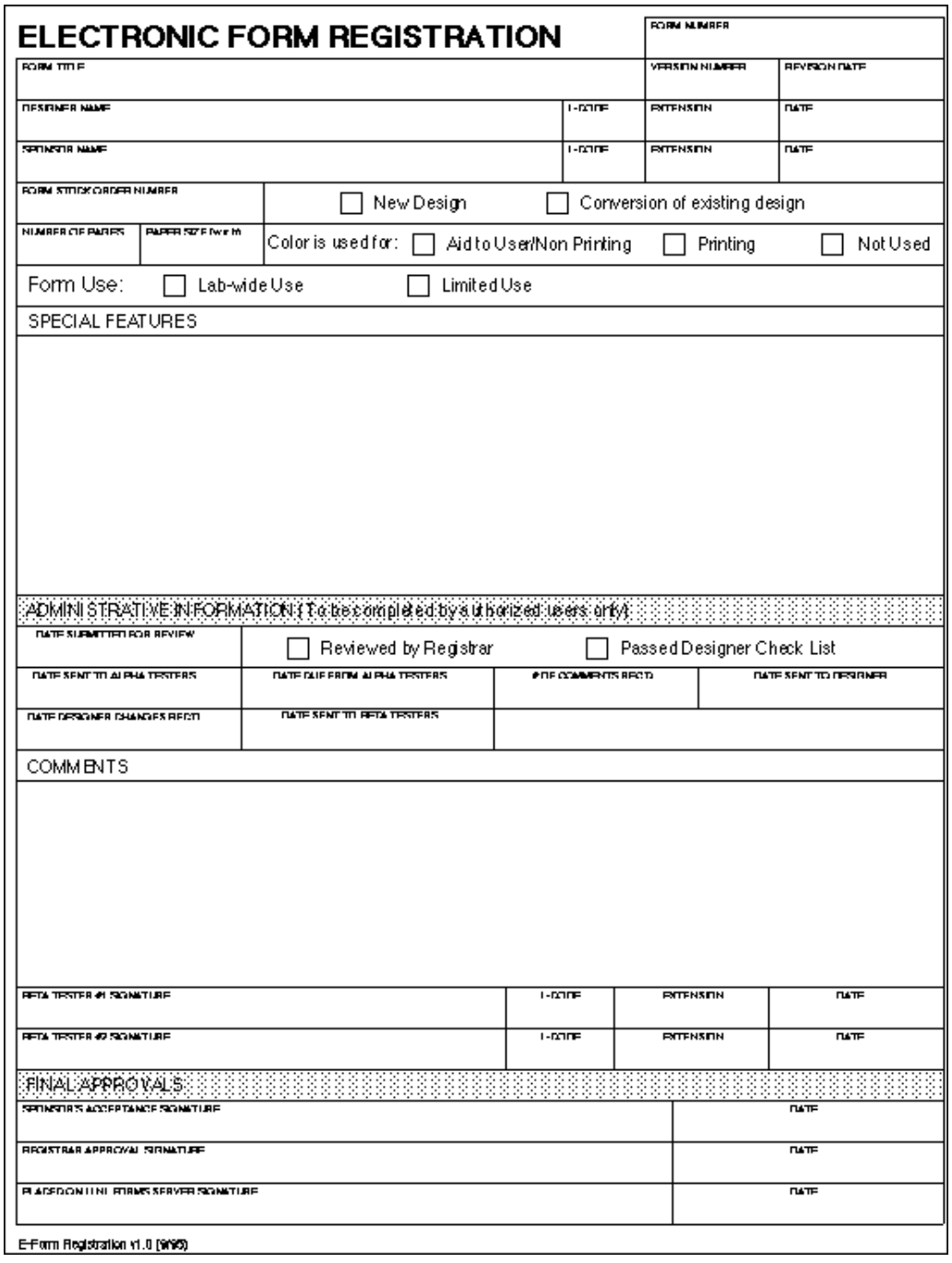
The registrar reviews the comments of the beta testers and verifies their results. These testers sign off on the Electronic Form Registration form that they have checked all the items on the designer's checklist and have verified that the form meets minimum design specifications and complies with LLNL standards.

Release of Your Form

To ensure that forms released to the LLNL Forms Server remain unchanged, the E-Forms Registrar assigns a design password just before placing the form on the LLNL Forms Server. Only the E-Forms Registrar or designee is authorized to release forms to the LLNL Forms Server. This ensures that only officially approved forms exist on the server.

☞ **The Electronic Form Registration Form and the Development Completion Checklist can be found on the LLNL Forms Server in the AIS Zone. The Electronic Form Registration Form is an electronic form and can be filled out with Informed Manager®. The Development Completion Checklist is a Microsoft Word document and is intended to be completed by hand.**

Sample Electronic Form Registration Form



ELECTRONIC FORM REGISTRATION

FORM NUMBER

FORM TITLE | VERSION NUMBER | REVISION DATE

DESIGNER NAME | I-CODE | EXTENSION | DATE

SPRINGSTR NAME | I-CODE | EXTENSION | DATE

FORM STOCK/ORDER NUMBER | ☐ New Design ☐ Conversion of existing design

NUMBER OF PAGES | PAPER SIZE (w x h) | Color is used for: ☐ Aid to User/Non Printing ☐ Printing ☐ Not Used

Form Use: ☐ Lab-wide Use ☐ Limited Use

SPECIAL FEATURES

ADMINISTRATIVE INFORMATION (To be completed by authorized users only)

DATE SUBMITTED FOR REVIEW | ☐ Reviewed by Registrar ☐ Passed Designer Check List

DATE SENT TO ALPHA TESTERS | DATE DUE FROM ALPHA TESTERS | # OF COMMENTS RECD | DATE SENT TO DESIGNER

DATE DESIGNER CHANGES RECD | DATE SENT TO BETA TESTERS

COMMENTS

BETA TESTER #1 SIGNATURE | I-CODE | EXTENSION | DATE

BETA TESTER #2 SIGNATURE | I-CODE | EXTENSION | DATE

FINAL APPROVALS

SPRINGSTR'S ACCEPTANCE SIGNATURE | DATE

REGISTRAR APPROVAL SIGNATURE | DATE

PLACED ON LIVE FORMS SERVER SIGNATURE | DATE

E-Form Registration v1.0 (9/95)

Contributors A

Lauri Falabella (editor)

Lauri Falabella is a member of the Business Process Automation Team in Administrative Information Systems (AIS) that supports electronic forms. She is also a member of the Forms Automation Steering Committee and is the Lab E-Forms Registrar . Lauri is an experienced Informed Manager® user, a form designer, and is also an experienced form tester.

Sharon Kerst

Sharon Kerst is a Computer Technician in the Oasis Group of the Technical Information Department (TID). She was a former Compositor in the Composition Group of TID and has much experience creating paper forms for various departments at the Laboratory. She has developed a few electronic forms for the Oasis Group to use internally. Sharon is very interested in forms automation and being able to link forms and databases to eliminate retyping information from form to form.

Karla Knox-Stauffer

Karla Knox-Stauffer is an Administrative Specialist in Hazardous Waste Management Division, Environmental Protection Department. She is an experienced designer using many drawing applications and specializes in applying the crucial design elements to form layout: readability, balance, and harmony. Karla would be happy to offer her advice on creative ideas to add the perfect touch to your form design and to teach you how to use your "critical eye." She enjoys exchanging tips as well.

Jill Loewe

Jill Loewe is an Administrative Assistant to Operations and Regulatory Affairs Division in the Environmental Protection Department. She is new to the electronic form automation process, but for many years has created her own forms in MacDraw Pro. Jill is a member of the Forms Automation Support Team (FAST) and the Forms Automation Designers' Exchange (FADE) and is an experienced form tester.

Starr Smith

Starr Smith in her normal day job is a bean counter (Resource Manager) for Plant Engineering, Maintenance, and Operations. Starr found out about electronic forms a few years ago and convinced her department that Informed was a pretty good thing. Starr really enjoys her work designing forms and can often be found late at night, laughing to herself as a form comes together. Starr loves to discuss the subject, so if you want to talk about Informed, give her a call.

Eric Warfel

Eric Warfel was a member of the AIS Business Process Automation Team before he left the Lab in 1996. He was one of the most creative e-form designers and was also our technical point of contact with the Shana Corporation.

Tricks, Tips, and Techniques B

Starting a New Form

I don't start a new form by double clicking on Informed Designer®. I created a form that I call "Scratch." I've set up the work page basics, set my preferences for type of field, put in the LLL logo, and basically gotten ready. I've done all the housekeeping necessary to start a new form. I only did it once, but I can still say I started a form from "Scratch."

Starr Smith, 3-3319

Fields

The default field has a field name and a box around it. Most of my fields have no field name and no box. If you double click on the field tool, it will bring up a settings dialog box for that tool. Change your settings to the type of field you normally use. I set Fields - Titles to None and Style - Pen to None. That way, my field names are typed in as part of the form mask, not part of the field.

Starr Smith, 3-3319

Replicating Fields

Field replication is a powerful tool. If you need to have similar fields, create one field with all the settings established and replicate it. The replicate command lets you choose how many you want to replicate and at what intervals. If you set the first offset to "0", the second offset to "1", and choose "5" replications, you will have six fields, exactly alike aligned vertically at a "1" spacing (using whatever measure your form is defaulted to). You can use the Undo command if the spacing is not right and replicate again, changing the spacing until it looks right.

One really neat trick is to name the original field with a "1" at the end. When you replicate, the other fields have the same name but with a 2, 3, and 4 at the end. For example, name your original field "Name1". Your replicated fields will be named "Name2", "Name3", "Name4" etc.

Starr Smith, 3-3319

Nudges

When you want to resize any object you have designed (a field, a box, a line, etc.) just use the Option and the Right Arrow to enlarge the width; use the Option and the Left Arrow to decrease the width; use the Option and the Down Arrow to enlarge the length; and use the Option and the Up Arrow to decrease the length.

Lauri Falabella, 3-5253

Your Tip Here

This appendix is a "bulletin board" to which anyone can contribute. We welcome and encourage your comments and suggestions. Send your tips and suggestions to Lauri Falabella.

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